



QUESTIONNAIRE INVENTORY ABOUT CLINICAL KNOWLEDGE AND AWARENESS OF MOLAR -INCISOR HYPO MINERALIZATION (MIH) AMONG DENTAL SPECIALIST, INTERNS AND STUDENTS, AT COLLEGE OF DENTISTRY, KING KHALID UNIVERSITY, ABHA SAUDI ARABIA

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ABSTRACT

Background: Molar-Incisor Hypomineralization (MIH). MIH presents the clinical picture of hypomineralization of systemic origin affecting one or more first permanent molars (FPMs) that are associated frequently with affected incisors. Aim: To assess the clinical knowledge and awareness of MIH among Dental Specialist, Interns, Students and in KKU, COD, Abha. **Material and Method:** The study was conducted in KKU, COD, Abha in form of survey with data being gathered via a questionnaire. The survey was conducted amongst the dental specialist, interns and students. The questionnaire used a set of 8 questions which was based on the clinical knowledge and awareness of MIH. **Results:** 354 participants were involved in the MIH questionnaire. The specialist (80%), interns (55.5%) and students (41%) who were aware of MIH observed affected teeth on a monthly basis less range was seen on weekly and daily basis. 42% and 30% students also had problems in diagnosis and esthetics. A widely held view among specialist (90%), interns (83%) and students (66%) gave an opinion that MIH is a problem in their country. Data was entered in MS Excel sheet and descriptive statistics were obtained. **Conclusion:** All the three groups felt that MIH presents several clinical challenges and knowledge of clinicians level of perception could be an spur for dentists to become more acquainted with MIH by conducting various surveys about prevalence and awareness.

KEY WORDS: Enamel hypomineralization, First permanent molar, Permanent Central Incisor, Knowledge, Awareness.

INTRODUCTION:

Over the past decades, there is an increasing number of congenital defects affecting enamel mineralization referred to as Molar-Incisor Hypomineralization (MIH). Molar-Incisor Hypomineralization is one of the major developmental disturbances of the dental enamel of a systemic origin affecting less frequently, in association with affected incisors.¹ MIH, however doesn't appear to be a new phenomenon, it was first noted in Sweden (1970s). But the condition has been frequently overlooked, especially in grossly carious teeth where the dental caries may take precedence over the developmental defect responsible for initiating of the cavity.² The term MIH was firstly cited by WEERHEIJM ET AL (2001)³ and also known as cheese molars, dysmineralized first permanent molar (FPM), hypomineralization and idiopathic enamel hypomineralization with prevalence ranging from 3.5% to 40.2%.⁴ The condition is attributed to disruption of ameloblastic function during the transitional and maturational stage of amelogenesis.⁵ MIH is a qualitative defect affecting enamel translucency.⁶ Diagnostically, MIH should not be confused with enamel hypomineralization, fluorosis and amelogenesis imperfecta. In hypoplasia, the borders of the deficient enamel are smooth, while in post eruptive breakdown (MIH) the borders of enamel are irregular. MIH has well demarcated borders in contrast to enamel fluorosis are diffuse. In addition fluorosed enamel is caries resistant while as MIH is caries prone due to porous enamel. Amelogenesis imperfecta affects all teeth, MIH affects first permanent molar (FPMs).⁷ Research into the etiology of MIH has concentrated on an environmental insult occurring in the first four years of life because of the pattern of molars and incisors affected.⁵ Several studies have been reported about the effect of MIH on oral health status including enamel breakdown, increased dental caries and extraction due to MIH was the second most common cause of first permanent molar loss following dental caries.⁸

Hence, the present study attempted to determine a questionnaire about the clinical knowledge and awareness of MIH among Dental specialist, interns and students, in King Khalid University, College of Dentistry, Abha.

METHODOLOGY:

This study was conducted in King Khalid University, in form of survey with data being gathered via a questionnaire. The survey was conducted amongst the dental specialist, interns and students. The questionnaire consisted of 8 questions, which had been developed by a team of pediatric dentists. The questionnaire was based on the clinical knowledge and awareness of MIH among the participants. The questionnaire consists of valid set of questions, easy to understand and finish it within reasonable amount of time. The survey (questionnaire) consists of pres-

ence of MIH in practice, familiarity with MIH teeth, confidence in diagnosing MIH, knowledge about etiological factors, clinical experience of MIH and views on the necessity for clinical training regarding MIH. All participants completed the questionnaire in their own time period and returned back to the concerned investigator. All participants of KKU were very efficient in returning back the questionnaire.

RESULTS:

The total of 354 participants were involved in the MIH questionnaire out of which 100 were Dental specialist, 54 interns and 200 students. Dental clinical awareness and knowledge among Dental specialist, Dental interns and Dental students is illustrated in TABLE 1.

TABLE 1:

QUESTIONNAIRE	Dental Specialist (100)	Dental intern (54)	Dental student (200)
1) Do you encounter hypomineralised teeth in your practice?			
a) Yes	95	41	98
b) No		3	32
c) Not sure	5	10	70
2) Are you familiar with these types of teeth?			
a) Yes	90	32	72
b) No		10	60
c) Not sure	10	12	68
3) In your clinical work, how often do you notice hypomineralised teeth?			
a) Daily basis	5	7	20
b) Weekly basis	10	10	38
c) Monthly basis	80	30	82
d) Yearly basis	5	7	60
4) Do you think MIH is a clinical problem? If yes; do you experience problems with..			
a) Diagnosis	8	33	84

b) Aesthetics	82	9	60
c) Providing adequate restorations	10	7	49
d) Achieving patient comfort (for function, OH)	—	5	7
5) Are you aware with the etiology associated with MIH?			
a) Yes	84	37	92
b) No	16	17	108
6) Do you think MIH is problem in your country?	90	45	132
a) Yes			
b) No	10	9	68
7) How confident do you feel when diagnosing MIH teeth?			
a) Very confident	5	11	11
b) Confident	90	15	60
c) Unconfident	5	28	129
8) Would you like clinical training regarding tooth hypomineralisation?			
a) Yes	88	39	172
Diagnosis			
Aetiology			
Treatment			
b) No	12	15	28

The vast majority of the respondents i.e. Dental specialist, intern and students have encountered hypo mineralized teeth (95%, 75%, 49%) respectively in their professional work. Less percentage of dental interns and students have not encountered hypo mineralized teeth in their practice. 18% and 35% of the interns and students are not sure whether they have encountered hypo mineralized teeth or not. Those with post-graduate qualifications (dental specialist) reported a higher rate of familiarity (90%) to MIH than students. 59% of the interns were familiar with MIH. 36% of the students were also familiar of these teeth. The Dental specialist, interns and students who were aware of MIH observed affected teeth on a monthly basis (80%, 55%, and 40%) respectively less range was seen on yearly and daily basis. Most of the participants had problem in aesthetics and diagnosing MIH or providing adequate restoration. 81% of the Dental specialist said MIH is a clinical problem with respect to aesthetics. 42% of students had clinical problems with diagnosis of MIH and 61% interns with diagnosis also. A variety of opinions were given regarding the awareness and etiology of MIH. The vast majority of participants i.e. specialist (82%), interns (69%) and students (45%) were aware of MIH etiology. A widely held view among Dental specialist (98%), interns (83%) and students (66%) deduced that MIH is a problem in their country.

In diagnostic confidence assessment, the majority of dental specialist (90%) were confident about correctly diagnosing MIH, when comparing the level of interns and students. 51.8% of interns were unconfident and 64% students also were unconfident about diagnosing MIH. In determining clinical training requirements, the vast number of participant's i.e. Dental specialist, interns and students agreed of having clinical training in diagnosis, etiology and treatment.

DISCUSSION:

MIH is likely not caused by one specific factor, several harmful agents may act together and increase the risk of MIH which occur with one another or even synergistically.⁹ To have a good awareness and knowledge of MIH, it's very important for a dental practitioner to know the etiology of MIH and be familiar with it as this is the most commonly defect seen in first permanent molar (FPM) with or without the involvement of permanent incisors. The last couple of decades MIH has seen the recognition and acknowledgement of non-fluoride associated developmental dental defect as an increasing problem. Various surveys have been done regarding the prevalence rate and perception of MIH and majority have perceived MIH to be a clinical problem.¹⁰

This study was based on the questionnaire investigating the knowledge and awareness of MIH among Dental specialist, interns and students in King Khalid University, College of Dentistry, Abha. In the present study majority of the participants (Dental specialist, interns and students) encountered teeth typical of MIH (95%, 75% and 49%) respectively and were also familiar with MIH. A monthly frequency of MIH has been reported by the majority of the participants around 80% by Dental specialist, 55% interns and 40% by students. Only 30% of the students said on yearly basis. This could represent that a reasonable count of MIH prevalence and reflect avowed existence of this condition amongst the population which in turn signify the necessity of conducting the surveys to provide reliable data about its prevalence. Furthermore the respondents are facing clinical problems regarding diagnosis, aesthetics and restorations also. 61% interns and 42% students faced problems in diagnosis, which is an important part of MIH. To help with diagnosis of MIH, WEERHEIJIM ET AL (2003) developed the judgment criteria for MIH.¹¹ This suggest that further work is needed to

assess this lack of understanding of the condition and prevent further implications of late diagnosis.

The etiology of MIH is still perplexing.¹² The vast majority of Dental specialist, interns and students are aware of the etiology of MIH but at the same time need to have more knowledge about it, as it is an upcoming dental problem and should not be underestimated. A need exists to have a data bank on etiological factors for dental clinicians for better assessment for the risk factors and appropriate intervention and strategies.

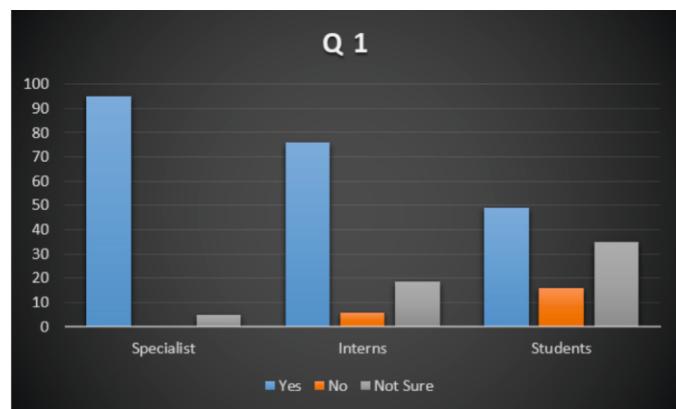
It is deduced from the questionnaire that MIH is an existing dental problem in Saudi Arabia. 90% specialist, 83% interns and 66% students think MIH is a problem in their country. However present study is not a clinical study and focus should be provided on dental training for those who want to know about this condition and a broader survey involving a wide spectrum of dental care providers to develop some data for MIH. Further, the high rate of diagnostic confidence among Dental specialist (90%) reflect the awareness of MIH and limited diagnostic confidence among interns and students. Possible explanations for this might be the lack of experience or insufficient training. MIH is sometimes mistaken with different developmental defects of the enamel as dental fluorosis, enamel hypoplasia and amelogenesis imperfecta.¹¹ One should be well versed with the differentiating features of the defects. Special attention should be paid to children with MIH during eruption stage of the first permanent molars.¹²

High percentage of interest was seen among Dental specialist, interns and students (89%, 72% and 86%) respectively was seen regarding the clinical training in etiology, diagnosis and treatment for the teeth affected with MIH. This further emphasizes the difficulties posed by the existence of ambiguity regarding MIH and find appropriate management strategies so that it is essential to improve the clinical conditions. This can happen by further qualitative work which could help us to understand the cause of this MIH.

The percentage of 8 questionnaire is given in the GRAPH 1,2,3,4,5,6,7,8 that differentiates the views among Dental specialist, interns and students about MIH.

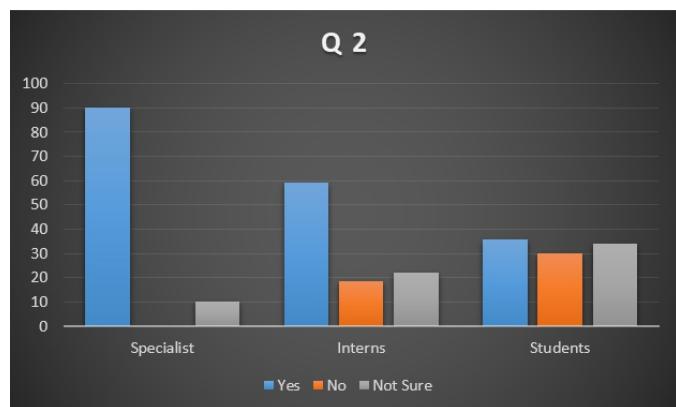
GRAPH 1: Do you encounter hypomineralized teeth in your practice?

- a) Yes
- b) No
- c) Not sure



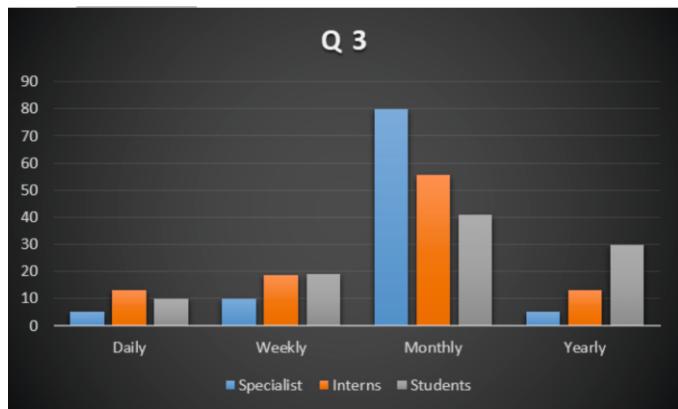
GRAPH 2: Are you familiar with these types of teeth?

- a) Yes
- b) No
- c) Not sure

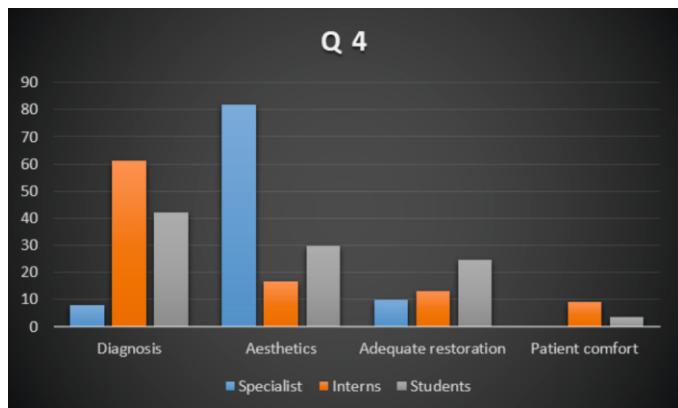


GRAPH 3: In your clinical work, how often do you notice MIH teeth?

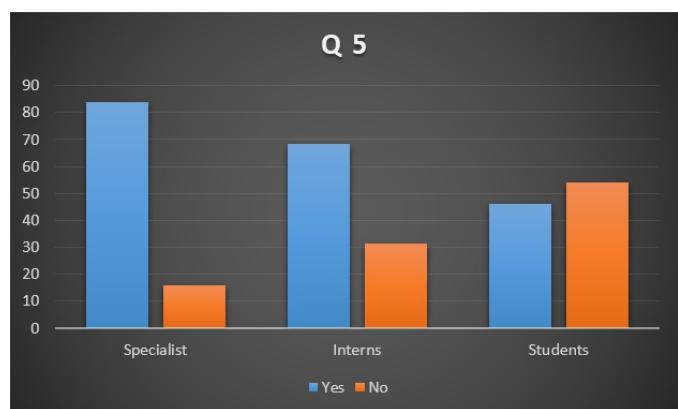
- a) Daily basis
- b) Weekly basis
- c) Monthly basis
- d) Yearly basis

**GRAPH 4:** Do you think MIH is a clinical problem? If yes, do you experience problems with..

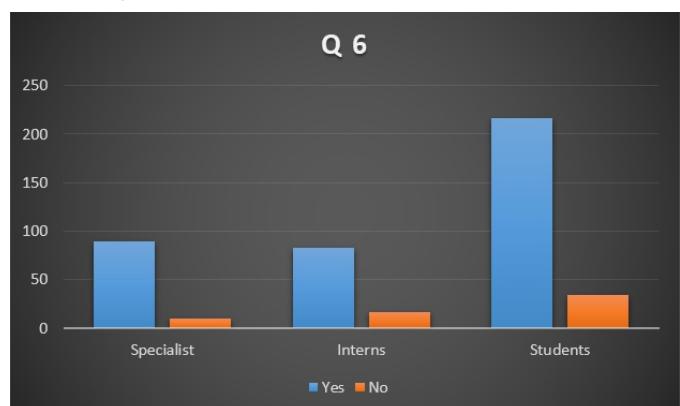
- a) Diagnosis
- b) Aesthetics
- c) Providing adequate restoration
- d) Achieving patient comfort (for function, oral hygiene)

**GRAPH 5:** Are you aware with the etiology associated with MIH?

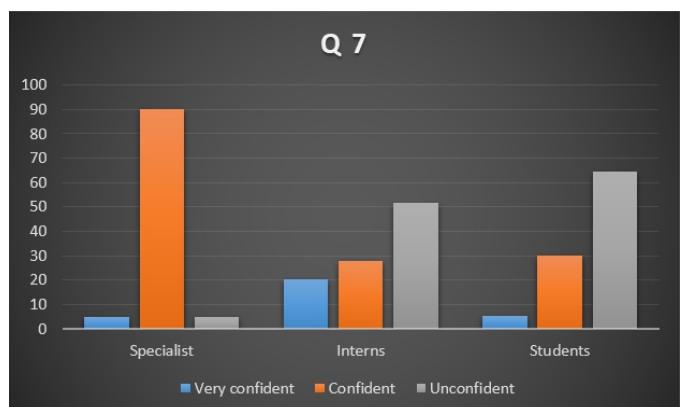
- a) Yes
- b) No

**GRAPH 6:** Do you think MIH is a problem in your country?

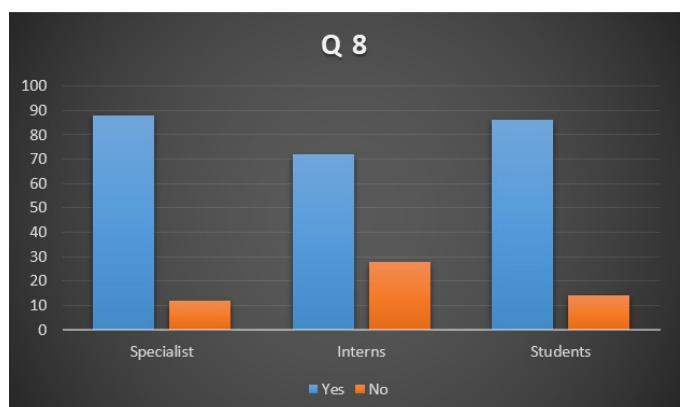
- a) Yes
- b) No

**GRAPH 7:** How confident do you feel when diagnosing MIH teeth?

- a) Very confident
- b) Confident
- c) Unconfident

**GRAPH 8:** Would you like clinical training regarding tooth hypomineralization?

- a) Yes - Diagnosis
- Aetiology
- Treatment
- b) No

**CONCLUSION:**

Molar-incisor hypomineralization seems to be a clinical problem. All respondents encountered difficulties with MIH. They also recognized the need for more clinical training regarding tooth hypomineralization and support to deliver more efficient and cost-effective dental care for children with MIH. In the present study the respondents also believed that MIH was on a rise in their country and further appropriate awareness, knowledge and management strategies of MIH affected teeth need to be taken into consideration by formulating public awareness and preventive programs.

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